

Amendments to the Drawings:

Please amend previously amended Figures 1-2 and originally filed Figures 3 and 5 as shown on the enclosed Annotated Sheets.

Please amend FIG. 1 with following changes:

- the reference numeral "1" is changed to "11"
- the reference numeral "4" is changed to "25"
- the reference numeral "5" is changed to "26"
- the word "ADJUSTMENT" is changed to the word "CORRECTION"

Please amend FIG. 2 by correcting the word "INTENCITY" and inserting the word "INTENSITY".

Please amend FIG. 3 with the following changes:

- the reference numeral "35" above words "INTENSITY PROCESS UNIT" is changed to "41"
- arrows on the left of the words "IMAGE MATRIX," on the right of words "EDGE PROGRESS UNIT" and on the right of words "EDGE DETECTION UNIT" should be deleted.

Please amend FIG. 5 with the following changes:

- the word "EDEGE" should be changed to the word "EDGE"
- words "IMAGE DATA" should be changed to words "EDGE INFO"

Please replace originally filed Figures 2 and 5 and previously amended Figures 1 and 2 by the Replacement Sheets.

Attachment: Replacement Sheets
Annotated Sheets

REMARKS

The Examiner has rejected claims 1 through 44 under 35 U.S.C. §112, First Paragraph in response to the claim amendments that were submitted in the last response. The Examiner has objected to the drawings, the specification and the claims. The Examiner has rejected claims 1 through 26, 29 through 39 and 42 through 44 under 35 U.S.C. §102(b). Lastly, the Examiner has rejected claims 13, 27 and 40 under 35 U.S.C. §103(a). In view of the above amendments and the following remarks, the Applicant respectfully requests the Examiner to reconsider the withdrawal of the currently pending objection and rejections.

The Drawing Objections

The Examiner has objected to Figure 2 for a misspelled label and some reference numerals. Accordingly, Figure 2 has been amended to correct the misspelled label. In addition, some reference numerals and the corresponding labels have been also amended in Figure 1 so that some elements in Figures 1 and 2 have the common reference numerals and label. However, since not all elements in Figure 1 correspond to those in Figure 2, not all elements in Figure 1 are amended. To accommodate the drawing amendments, the corresponding descriptions have been also amended in the specification.

The Examiner has objected to Figure 3 since the drawing allegedly fail to indicate “an emphasis filter group, original data pass filter, strong emphasis result.” The description involving the above terms with respect to Figure 3 is related to the inner working of the specified filter process 2, which can be performed by the sharpness adjustment unit 3. For this reason, the Applicants believe that it is not necessary to show the exact filters in the same drawing.

With respect to Figure 3, the Examiner has questioned a significance of the two arrows and a duplicate reference numeral. Consequently, these arrows are removed from the drawing to eliminate the confusions. The reference numeral 35 for the front filter remains while the

reference numeral of the intensity process unit is now amended to 41. The corresponding description on page 8 of the specification is also changed to reflect the above new reference numeral.

The Examiner has objected to Figure 5 since it includes a misspelled word and inconsistency. That is, Figure 5 shows "IMAGE DATA" while the corresponding description at lines 21, 22 on page 9 discloses that "[b]ased upon the edge information, one of two intensity correction tables T1 and T2 is selected." Accordingly, the misspelled word is amended, and the consistent label now reads "Edge Info."

The Specification Objections

The Examiner has objected to the specification on pages 1, 3, 5, 7, 8, 9 and 11. The specification has been amended as kindly suggested by the Examiner except for page 5. The word, "documents" on line 13 of page 13 has been already amended to "word" in the previously submitted amendment. If the above amendment has not been properly entered, Applicants request the Examiner to kindly enter the Examiner's Amendment to correct the informality.

The Claim Objections

The Examiner has objected to the claims of page 11 of the previously submitted response. The Examiner has indicated uncertainty of claim 41. Please cancel claim 41. If the above amendment has not been properly entered, Applicants request the Examiner to kindly enter the Examiner's Amendment to cancel claim 41. In the accompanying list of claims in the current response, claim 41 is indicated as previously "cancelled."

In view of the above amendments and remarks, the Applicants respectfully submit that the pending objections should be withdrawn.

The Section 112 First Paragraph Rejections

The Examiner has rejected claims 1 through 44 under 35 U.S.C. §112, First Paragraph in response to the claim amendments that were submitted in the last response. Regarding independent claims 1, 15 and 29, the Examiner indicated that the claimed term, “relative position” is not described in the specification in such a way as to reasonably convey to one of ordinary skilled in the relevant art that the inventors had possession of the claimed invention. Although Applicants do not necessarily agree with the Examiner’s characterization, Applicants had amended the independent claims to clarify the subject matter limitation of the last amendments.

Newly amended independent claims 1, 15 and 29 now each explicitly recite “an outline characteristics including information on vertical, horizontal, right and left edges of the outline portion in the image data.” The questioned claim term is eliminated by the current claim amendment. Furthermore, the original disclosures of the current application clearly support the currently clarified patentable features of the current application. As described with respect to FIGURE 7 and at lines 13 through 21 on page 10 of the current application, the “vertical, horizontal, right and left edges” are respectively detected by edge detection units 50A, 50B, 50C and 50D. Furthermore, with respect to FIGURE 10 and at line 26 on page 12 through line 2 on page 13 of the current application, the “vertical, horizontal, right and left edges” are respectively detected by the step S3.

Based upon the above reasons, newly amended independent claims 1, 15 and 29 now explicitly recite the subject matter limitations of the current application in such a way as to reasonably convey to one of ordinary skilled in the relevant art that the inventors had possession of the claimed invention. Dependent claims 14, 28 and 41 have been cancelled in the previously submitted amendment. Dependent claims 2 through 13, 16 through 27, 30 through 40 and 42 through 44 ultimately depend from newly amended independent claims 1, 15 and 29 and incorporate the above discussed patentable features of newly amended independent claims 1, 15

and 29. Thus, Applicants respectfully submit to the Examiner that the currently pending rejections of claims 1 through 44 under 35 U.S.C. §112, First Paragraph should be withdrawn.

The Section 102(b) Rejections

The Examiner has rejected claims 1 through 26, 29 through 39 and 42 through 44 under 35 U.S.C. §102(b) as allegedly being anticipated by the Ueta et al. reference. However, Applicants respectfully submit to the Examiner that the listing of the rejected claims appears to be inaccurate. Since claim 14 has been cancelled in the previously submitted response and the detailed rejection basis is not provided for claim 13 in the Office Action, Applicants have assumed that the currently rejected claims under 35 U.S.C. §102(b) should be claims 1 through 12, 15 through 26, 29 through 39 and 42 and 44. If this assumed listing is not accurate, please contact the undersigned so that a supplemental response can be prepared before the examination of the current amendment.

The Examiner has pointed out that every element of the above independent claims has been disclosed by the Ueta et al. reference. Although the Applicant does not necessarily agree with the Examiner's characterization of the cited reference, independent claims 1, 15 and 29 have been amended to respectively incorporate the subject matter limitations of dependent claims 14, 28 and 41 that have been now canceled.

Newly amended independent claims 1, 15 and 29 now each explicitly recite "an outline characteristics including information on vertical, horizontal, right and left edges of the outline portion in the image data." The newly amended independent claims 1, 15 and 29 further explicitly recite "selecting a correction coefficient from a set of predetermined correction coefficients based upon said outline characteristics." In other words, the current invention as explicitly recited in newly amended independent claims 1, 15 and 29 determines the "vertical, horizontal, right and left edges of the outline portion in the image data" and selects "a correction coefficient" according to "said outline characteristics."

In contrast to the above discussed patentable feature of the current invention, the Examiner admits in the Office Action in Paragraph 14 with respect to the section 103 rejection that the Ueta et al. reference only “suggests a scanning direction to obtain an edge.” Thus, the Ueta et al. reference fails to anticipate the patentable features of newly amended independent claims 1, 15 and 29. Similarly, dependent claims 2 through 12, 16 through 26, 30 through 39 and 42 through 44 ultimately depend from one of newly amended independent claims 1, 15 and 29 and incorporate the patentable features of the newly amended independent claims. Therefore, the Applicant respectfully submit to the Examiner that the rejection of claims 1 through 12, 15 through 26, 29 through 39 and 42 and 44 under 35 U.S.C. §102(b) should be withdrawn.

The Section 103(a) Rejections

The Examiner has rejected claims 13, 27 and 40 under 35 U.S.C. §103(a) as allegedly being obvious over the Ueta et al. reference in view of the Kawamura et al. reference. As discussed above with respect to the section 102 rejections, the Examiner in Paragraph 14 of the Office Action stated for the rejection of claim 13 that “a special arrangement can contain a direction between two elements” based upon the disclosure of the Ueta et al. reference. Furthermore, the Examiner in the same paragraph cited the Kawamura et al. reference for disclosing, teaching suggesting “a particular direction” of claim 13.

As already discussed above, newly amended independent claims 1, 15 and 29 now each explicitly recite “an outline characteristics including information on vertical, horizontal, right and left edges of the outline portion in the image data” and “selecting a correction coefficient from a set of predetermined correction coefficients based upon said outline characteristics.” The information includes the “vertical, horizontal, right and left edges of the outline portion in the image data.”

The Kawamura et al. reference discloses the “image signal interpolation.” As disclosed with respect to Fig 1 of the Kawamura et al. reference, a portion of the image data is examined at a time to determine whether or not the portion contains a pattern as illustrated in sets PN1h, PN1v, PN0 and PN2h in order to perform one of the predetermined interpolation processes including the horizontal edge process S5, the vertical edge process S6 and the no-edge process S7. As further described in columns 7 and 8 of the Kawamura et al. reference, the first judgment in Step S1 is to determine whether or not the equation (9) is satisfied. If the equation (9) is satisfied, the image data contains the block pattern PN1 as shown in Fig 5A. On the other hand, if the equation (9) is not satisfied, the image data contains the block pattern PN2 as shown in Fig 5B or the block pattern PN0 as shown in Fig 5C. The equation (9) can roughly distinguish one edge area containing one line only within the image block. Similarly, the second judgment in Step S2 is to determine whether or not the equation (11) is satisfied. If the equation (11) is satisfied, the image data contains the horizontal edge block pattern PN1h as shown in Fig 5A. On the other hand, if the equation (11) is not satisfied, the image data contains the vertical edge block pattern PN1v as shown in Fig 5A. The equation (11) can distinguish a rough pattern of a vertical or horizontal edge only within the image block. The third judgment in Step S3 is to determine whether or not the equation (13) is satisfied. If the equation (13) is satisfied, the image data contains the block pattern PN2 as shown in Fig 5B. On the other hand, if the equation (13) is not satisfied, the image data contains the block pattern PN0 as shown in Fig 5C. The equation (13) can distinguish a certain rough pattern only within the image block, and the pattern is not necessary an edge. Lastly, the fourth judgment in Step S4 is to determine whether or not the equation (15) is satisfied. If the equation (15) is satisfied, the image data contains the horizontal edge block pattern PN2h as shown in Fig 5B. On the other hand, if the equation (15) is not satisfied, the image data contains the vertical edge block pattern PN2v as shown in Fig 5B. The equation (15) can distinguish a rough pattern of a vertical or horizontal edge only within the image block. As described above, in the Kawamura et al. reference, the second and fourth judgments determines whether or not an image block contains certain predetermined vertical and horizontal edge patterns. The Kawamura et al. reference fails to disclose, teach or suggest any information on the right or left relative position of the edge within the image block.

The above Kawamura et al. disclosure is limited to the identification of the patterns within the image block. In sharp contrast to “image block” of a predetermined pixel size, newly amended independent claims 1, 15 and 29 now each explicitly recite “an outline characteristics including information on vertical, horizontal, right and left edges of the outline portion in the image data.” In this regard, for example, the same vertical process S6 is applied to various edge block patterns and fails to distinguish any of the individual patterns in the set PN1v or PN2v.

Based upon the above discussed reasons, even if the Ueta et al. reference and the Kawamura et al. reference are combined, the combined disclosures fail to disclose, teach or suggest the essence of the explicitly recited patentable features of newly amended claims 1, 15 and 29. Dependent claims 13, 27 and 40 ultimately depend from one of newly amended independent claims 1, 15 and 29 and incorporate the patentable features of the newly amended independent claims. Thus, it would not have been obvious to one of ordinary in the art to provide the above discussed patentable feature of the relative position including right and left to select a processing coefficient based upon the prior art. Therefore, the Applicant respectfully submit to the Examiner that the rejection of claims 13, 27 and 40 under 35 U.S.C. §103(a) should be withdrawn.

Conclusion

In view of the above amendments and the foregoing remarks, Applicant respectfully submits that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

Respectfully submitted,



Ken I. Yoshida, Esq.
Reg. No. 37,009

Date: July 20, 2006

KNOBLE YOSHIDA & DUNLEAVY LLC
Eight Penn Center, Suite 1350
1628 John F. Kennedy Blvd.
Philadelphia, PA 19103
(215) 599-0600

Fig.1

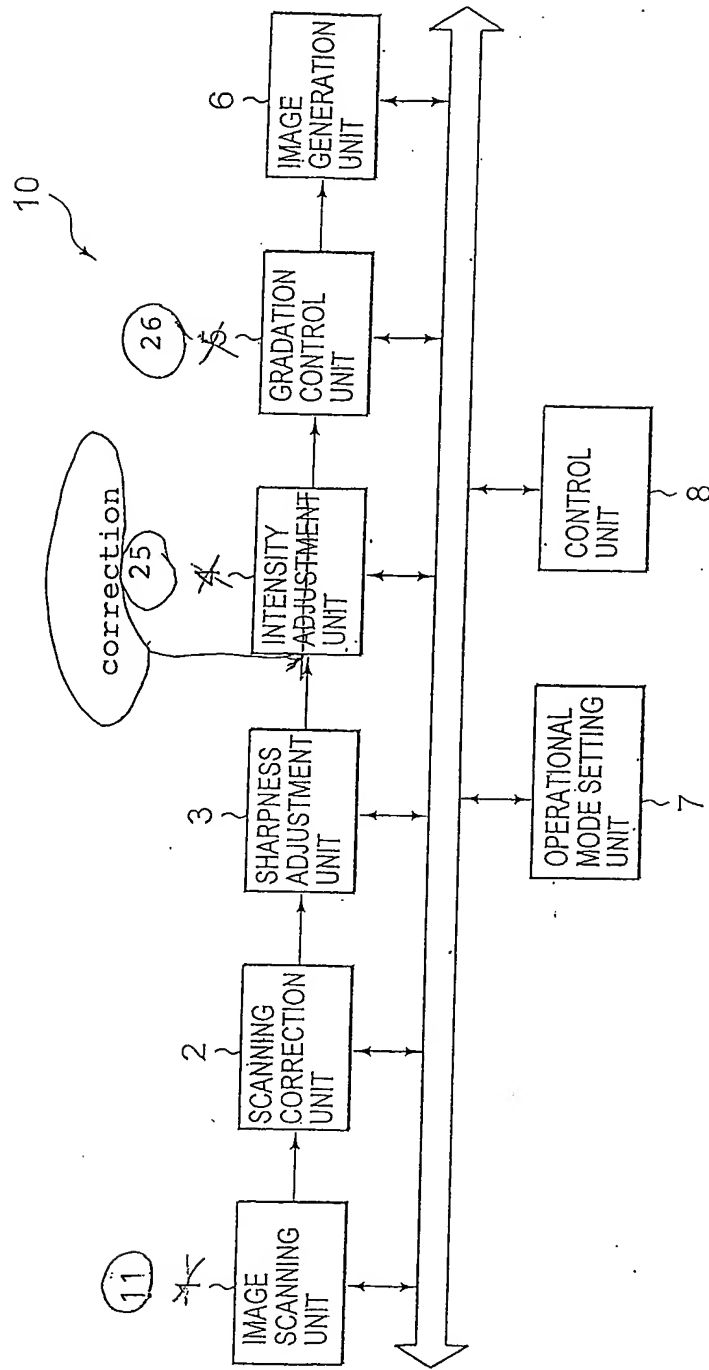
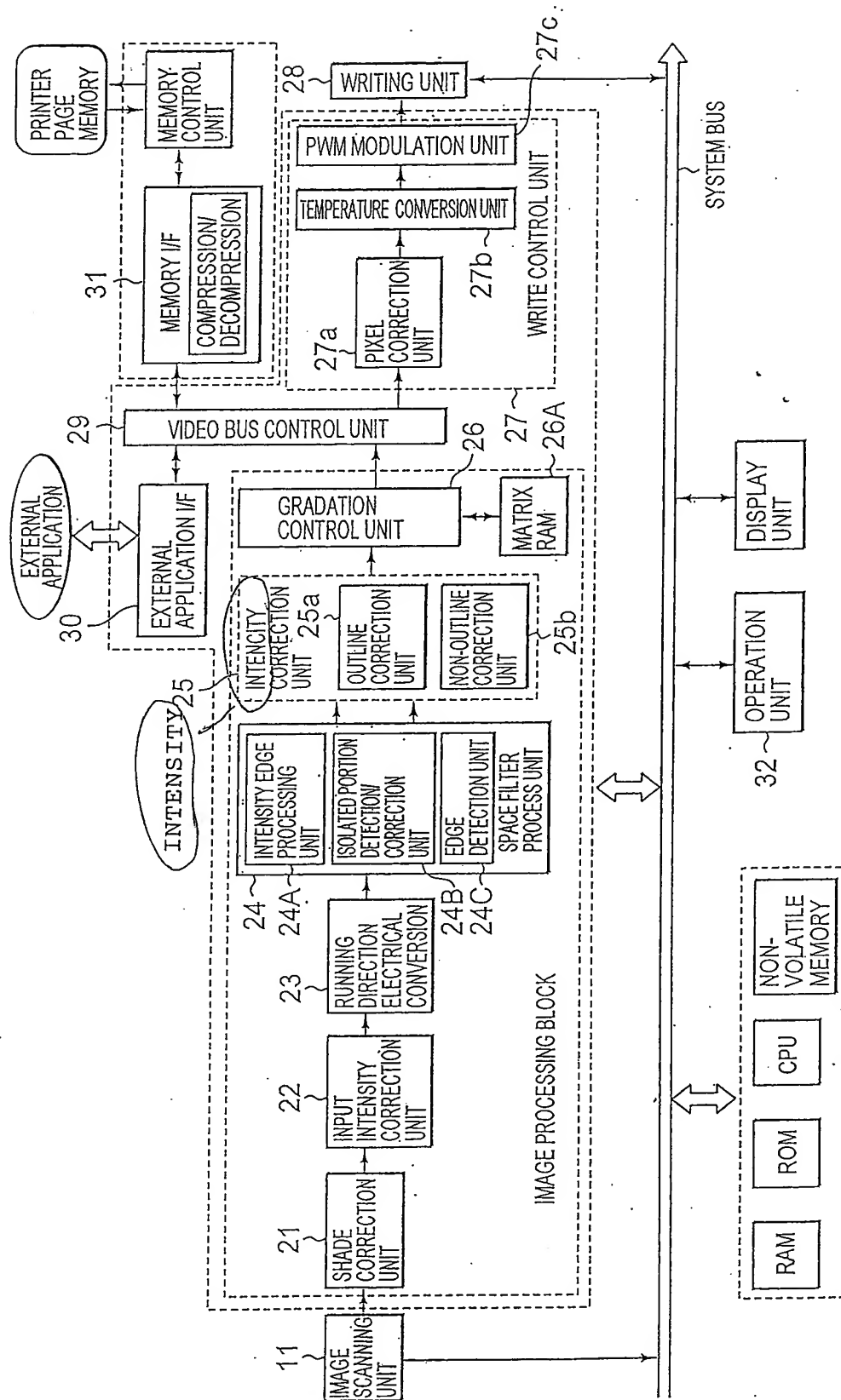


Fig.2



4



ANNOTATED SHEET.

ANNOTATED SHEET

Fig.4

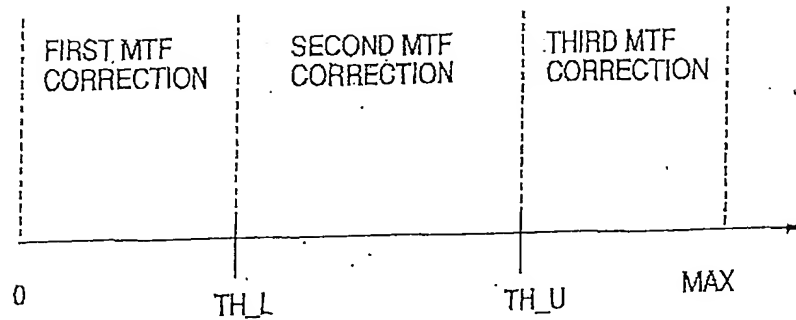


Fig.5

